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DRUJ screw: A solution to neglected painful isolated DRUJ

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Abstract

Background: Isolated distal radioulnar joint (DRUJ) instability is frequently underdiagnosed, particularly in the absence of accompanying fractures. If left untreated, it can lead to chronic pain, reduced range of motion, and long-term disability. While K-wire fixation has traditionally been used to manage DRUJ instability, it carries risks such as migration, infection, and insufficient rotational stability.

Aim: To evaluate the functional outcome of chronic, neglected, painful isolated DRUJ instability treated using cannulated cancellous/Herbert screws.

Materials and Methods: A prospective interventional study was conducted between January 2019 and December 2024 in the Department of Orthopaedics at King George Hospital. Fifteen patients (>6 weeks post-injury) with isolated painful DRUJ instability were included. All underwent fixation with cannulated cancellous screws. Patients were assessed postoperatively at intervals of 3 weeks, 6 weeks, 2 months, 6 months, and 1 year using stress tests, imaging, and the Mayo Modified Wrist Score (MMWS). Supination and pronation movements were initiated after screw removal at 8 weeks.

Results: The mean patient age was 37.3 years (range: 18–52). At one-year follow-up, all patients demonstrated DRUJ stability, with improved grip strength and pain relief. Based on MMWS, 6 patients had excellent outcomes, 7 had good, 1 satisfactory, and 1 poor outcome. No complications such as infection, screw migration, or instability were observed.

Conclusion: Fixation of chronic DRUJ instability using cannulated cancellous or Herbert screws yields superior outcomes compared to K-wire fixation. This method provides enhanced joint stability, reduces the risk of complications, and supports reliable functional recovery in chronic cases.

Keywords: Distal radioulnar joint (DRUJ), DRUJ Instability, cannulated cancellous screw

Introduction

DRUJ instability is usually associated with Galeazzi fracture and Intra-articular distal radius fracture but isolated DRUJ injury is often missed. It refers to loss of normal alignment and stability between distal radius and ulna leading to abnormal movement and potentially causing pain, weakness and decreased ROM. Neglected DRUJ instability incidence is estimated to be between 1- 5%. Accurate diagnosis and treatment are crucial to restore joint stability, alleviate symptoms and prevent long term complication ensuring optimal forearm and wrist function. K-wire fixation of the DRUJ was intended to temporarily stabilize and restore the distal radioulnar relation. But using K-wires to stabilize the DRUJ can have several disadvantages. These include: risk of wire migration (LOOSENING) or breakage, potential for nerve or tendon damage, limited rotational stability, and prominence of the wire, which can cause soft tissue irritation. Additionally, K-wires may not provide sufficient stability, leading to suboptimal outcomes. Hence, we hypothesise that DRUJ screw act as a better alternative than wire which nullifies the risk of migration and infection.

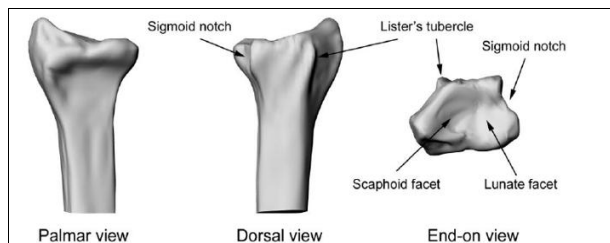
Anatomy

The distal radioulnar joint (DRUJ) is formed between Sigmoid notch of radius and distal end of ulna. The osseous structure of the DRUJ has minimal inherent stability. Thus, the DRUJ relies heavily on soft tissue structures, and instability of the joint is a common clinical problem when it is injured.

Since the sigmoid notch is shallow and the radius of curvature is 50% larger than that of the ulnar head, the skeletal structure of the DRUJ has little contribution to joint stability.

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The surrounding soft tissue structures are indispensable for DRUJ stability. Various structures have been described, including the joint capsule, pronator quadratus, distal interosseous membrane, ulnocarpal ligaments, extensor carpi ulnaris (ECU), and triangular fibrocartilage complex (TFCC). The primary stabilizer of the distal radioulnar joint is the triangular fibrocartilage complex. TFCC tears have been found to be the most common associated soft tissue injury in distal radius fractures. It has been reported that the incidence of TFCC injuries associated with distal radius fractures ranges from 35% to 78%.



AIM: To Study Functional Outcome of Chronic Neglected painful isolated DRUJ instability treated with DRUJ screw

Materials and Methods

A prospective interventional study was conducted at Department of orthopaedics in King George Hospital during the period between Jan 2019- Dec 2024 who underwent DRUJ instability fixation using a cannulated -cancellous screw with a 18-months follow-up.

All patients presented to us > 6 weeks of initial injury

Clinical tests and investigations are done for symptomatic patients

Stress test and stress xrays are done to further confirm the diagnosis.

Patients are also tested for ligamentous laxity comparing with normal other wrist.

All patients underwent fixation using cannulated cancellous screws which were removed after 8 weeks.

Inclusion criteria

- Patients with Isolated Neglected painful isolated distal radioulnar joint instability (piano key test positive/ by stress test and x ray positive)
- Patients who are above 18 yrs of age
- Patients who gave consent to participate in the study

Exclusion criteria

- Patients with acute distal radioulnar instability with fracture
- Patients who have positive ulnar variance
- Patients with ECU tendon snapping, DRUJ arthritis, ulnocarpal joint arthritis.
- Patients who are below 18 yrs of age
- Patients who did not give consent to participate in the study

Procedure

All patients were placed in Supine position under regional anesthesia, under sterile conditions, using fluoroscopy guidance.

Patient wrist was kept in supine position and the dorsal displaced ulna was reduced and checked under fluoroscopy. Incision was given on ulnar side (proximal to ulna head).

1st step- A guide wire is passed from distal ulna to radius

making sure DRUJ is reduced in both Coronal and sagittal plane and cortex drilling is done (should be at centre of ulna). 2nd step- Then cannulated cancellous screws/ Herbert screws were applied under fluoroscopy guidance and controlled compression of DRUJ is achieved, reduction verified under c arm guidance and confirmed with imaging of normal opposite wrist.



Postop protocol

Postoperatively wrist was immobilised with above elbow slab for 3 weeks. All patients were advised finger movements from 2nd postoperative.

Then changed to below elbow slab after 3 weeks and advised to do elbow ROM and finger movements but supination & pronation motions are restricted.

Screws were removed after 8 weeks after which supination and pronation movements were started.

Results

15 patients were included in the study, with an average age of 37.3 years in age group between 18- 52yrs at surgery. Out of which 8 were female & 7 were male and follow up was done 3 weeks, 6 weeks, 2 months, 6 months and 1year. At the last follow-up(at 1 yr), all had stable DRUJ(negative DRUJ compression test and negative piano key sign) results were evaluated using Mayo modified scoring system.

All patients reported either no pain or mild pain postoperatively.

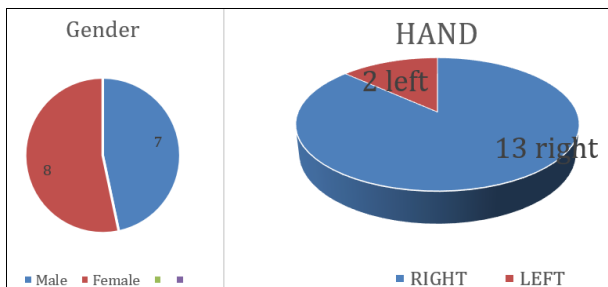
Grip strength also improved after surgery. (no pain)

Out of 15 patients 6 patients had excellent outcome 7 patients had good outcome and 1 patients had poor outcome.

1 patient who had poor outcome had pain and restriction of movements after 1 year of followup.

Grip strength	20+-2kg
Flexion-Extension	112+- 4 *
Pronation-Supination	160+-3*
MMWS (Mayo modified wrist score)	80-89

Results	No of patients
excellent	6
good	7
satisfactory	1
poor	1



References

1. Joint R. Solutions for the Unstable and Arthritic Distal. Managing Instability of the Wrist, Forearm and Elbow, An Issue of Hand Clinics, E-Book. 2020 Oct 28;36(4):523-530.
2. Lees VC. DRUJ replacement arthroplasty. In Disorders of the Hand: Volume 4: Swelling, Tumours, Congenital Hand Defects and Surgical Techniques; c2014 Oct 31. p. 253-272.
3. Iqbal MS, Mishra AK, Kaul R. Percutaneous suspensory stabilization of chronic distal Radioulnar Joint (DRUJ) dislocation using an adjustable Loop Endobutton Construct: Case Report. Revista Brasileira de Ortopedia. 2023 Aug 11;58(2):351-355.
4. Iqbal MS, Mishra AK, Kaul R. Percutaneous suspensory stabilization of chronic distal Radioulnar Joint (DRUJ) dislocation using an adjustable Loop Endobutton Construct: Case Report. Revista Brasileira de Ortopedia. 2023 Aug 11;58(2):351-355.
5. Smith MP, Kleinman WB, Crosby NE. Early Results in Total Replacement of the Distal Radioulnar Joint. HAND. 2024 Mar 4:15589447241233362.

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Conclusion

The use of cannulated cancellous screws/ Herbert screws provided more stability than K-wire fixation, with no complications such as K-wire migration(loosening), Pin site infection. Our study results show that surgical fixation of distal radioulnar joint (DRUJ) disruptions using a corticocancellous screw/ Herbert screw provides reliable long-term results. This method provides a stable procedure for fixation of painful and distal radioulnar joint disruption with a percutaneous method.

Conflict of Interest

Not available.

Financial Support

Not available.